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Quasi-markets in US higher education: The humanities and institutional revenues

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Abstract

We conceptualize colleges and universities as embedded in quasi-markets, meaning competitive sites created by policy, that disfavor the humanities. We therefore posit that increased revenues from a quasi-market predict institutional de-emphasis of the humanities. Results indicate that private colleges and universities follow this pattern while public institutions do not.

Debate about the state of the humanities has raged for several decades. Some scholars argue that disciplinary departments and degree programs in these fields are endangered. This sentiment is perhaps most succinctly expressed in the title of Donoghue's (2008) recent book, *The Last Professors: The Corporate University and the Fate of the Humanities*, although a large number of other commentaries, many from faculty members in the humanities (e.g., Dangerfield & Engell, 2005; Hanley, 2005), echo the assumption that the humanities face potential extinction. In contrast, other scholars deploy data suggesting that reports of the death of the humanities are greatly exaggerated. The closure rate of humanities units remains modest with the exception of modern and classical language departments (Brint, Proctor, Mulligan, Rotondi, & Hanneman, 2012), and humanities departments have granted approximately the same number of degrees for more than 20 years (Geiger, 2010).

We shed light on this debate by taking a new theoretical and methodological approach. Organizational ecologists often take all humanities departments in baccalaureate-granting institutions as the population (Brint, et al, 2012). We instead argue that sector and control divide organizations into quasi-markets that powerfully influence college and university administrators' choices about humanities emphasis. Like markets, quasi-markets are spaces in which colleges and universities compete for resources. Quasi-markets contain both public and private funds, and are created by policymakers rather than arising spontaneously as sites of laissez-faire exchange (Slaughter & Rhoades, 2004). Conceiving colleges and universities as embedded in quasi-markets has theoretical and methodological implications. Because rewards in quasi-markets reflect policy priorities rather than economic efficiency, institutions in some sectors or with various forms of control may prove particularly adept at accessing these rewards. For example,

research universities (RUs) are better able to compete for federal mission agency funds than are baccalaureate colleges (BCs).

Postulating quasi-markets as powerful influences on organizational decision-making suggests that it may be inappropriate to sample all baccalaureate and above colleges and universities when trying to understand the condition of the humanities. Organizational success in quasi-markets likely varies by sector, level, and control. Further, only some institutions may be able to re-allocate internal resources to respond to quasi-market incentives. Because internal institutional accounting is not standardized, we leave these internal processes in their "black box," and focus instead on relations among variables that provide indications of decision-making. For example, if grant and contract revenues at RUs go up, and the number of Ph.D. degrees awarded in the humanities goes down, this suggests that decisions were made to invest in fields other than the humanities at the doctoral level. We use an array of data sets and quantitative analyses to explore several higher education sectors and quasi-markets. We argue that the humanities do quite well in some contexts, and do not fare well in others.

To clarify the state of the humanities, we explore the ways in which U.S. colleges and universities have (de)emphasized the humanities in particular quasi-markets. We begin by developing a theoretical basis through which to understand the humanities. We review the contributions of organizational ecology to understanding the birth, growth and decline of humanities fields, but utilize resource dependency and academic capitalism theories to understand how campus officials respond to quasi-market conditions.

We consider two distinct quasi-markets. First, we consider competition for tuition-paying students at BCs.[1] Many tuition-paying students view their educations as investments in human capital, and therefore pursue vocationally oriented programs that promise relatively high lifetime earnings. Such degree programs tend to congregate in business, nursing, education, and the sciences rather than in the humanities (Cornwell & Stoddard, 2001; Dangerfield & Engell, 2005; Knox, Lindsay, & Kolb, 1993). Accordingly, colleges face pressures to build these fields, which can mean de-emphasizing the humanities (Delucchi, 1997; Kraatz & Zajac, 1996).[2] This is particularly true at BCs, which both rely heavily on tuition revenues for their operating budgets and compete vigorously for student enrollments (Desroches & Wellman, 2011).[3] BCs, in other words, are deeply embedded in the quasi-market of student tuition payments. This prompts our first research question:

> 1. At BCs, what is the relationship between net tuition revenues and the proportion of
>
> bachelors degrees awarded in the humanities?

Second, we consider competition for grants and contracts revenues from federal sources. Although states, institutions, and industry all contribute to academic research and development

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[1] While student choice may appear to be a laissez-faire market, we classify it as a quasi-market because many students receive substantial public subsidies in the form of state and federal student financial aid (Leslie & Johnson, 1974). Further, nearly all students receive subsidies from the institution that they attend (Winston, 1999). State and institutional subsidies shape students' educational consumption patterns (Heller, 1997).

[2] The literature on production functions (Dundar & Lewis 1995) suggests that some departments produce education at a lower cost for students than do others. In these analyses, the liberal arts includes both STEM and the humanities. Historically, however, STEM fields have been high, humanities low in terms of cost, despite the fact that students paid the same tuition. The question for resource allocators is how to respond to this. It may well be that education in the humanities "cost" less than other departments/disciplines because internal resource allocators have established a pattern that shaped production costs by hiring low-cost contingent faculty. Indeed, humanities departments' costs may be kept low to subsidize STEM fields (see Newfield, 2010).

[3] Liberal arts colleges compete for more than tuition revenues. For example, they compete for prestige (Brewer, Gates, & Goldman, 2002). However, because prestige is difficult to measure, we focused on tuition dollars.

(R&D) expenditures, the federal government supports approximately 60% of academic R&D, the great majority of which flows to RUs (NSF, 2012). This suggests that RUs are deeply embedded in the quasi-market of R&D funding. In general, the humanities have demonstrated little ability to generate these funds (Donoghue, 2008). The allocation of funds in the quasi-marketplace of research funding therefore may prompt universities to de-emphasize the humanities to pursue revenue-generating activities. This prompts our second research question:

2. At RUs, what is the relationship between federal grants and contracts income and the proportion of all PhD degrees awarded in the humanities?

We illustrate our arguments using descriptive statistics and regression analysis of institution-level data from 1988 through 2008. Results provide associational, but not causal, support for some postulates from our conceptual model. We conclude our paper with a discussion of implications for theory and for future research.

The humanities crisis and competition in quasi-markets

Colleges and universities compete with one another for a wide range of resources including tuition-paying students and funded research grants (Weisbrod, Ballou, & Asch, 2008). This competition occurs in "quasi-markets" (LeGrand, 1991; Kahkonen, 2004). In contrast to laissez-faire markets, federal and state governments do not stand outside of quasi-markets; rather, public bodies create these competitive sites (Slaughter & Rhoades, 2004). Accordingly, colleges and universities that engage in the kinds of activities valued by policymakers are likely to prosper. The U.S. policy climate has stressed "competitiveness" since the end of the Cold War. This narrative emphasizes federal and state policies designed to fund higher education

institutions to bolster the U.S. economy relative to those of other nation-states. In the research enterprise, this policy climate therefore emphasizes STEM programs because these fields promise commercializable inventions (Slaughter & Rhoades, 1996).

A similar pattern obtains with regard to tuition-paying students. The development of skills for employment and higher wages constitutes a primary motive for the pursuit of higher education (McMahon, 2009). Yet students tend not to view all degree programs as equals. Tuition-paying students who seek to develop skills for employment proceed disproportionately toward business and other vocational areas that train students to hold particular jobs (Dangerfield & Engell, 2005; Menand, 2010).

This policy environment implies that the academic disciplines in the humanities have become disfavored because many policymakers regard these disciplines as unlikely to yield novel discoveries or workforce development (e.g., Bennett, 1984; Bullen, Robb, & Kenway, 2007; Ladd, 2005; Leach, 2010). This disfavor is evident in federal mission agency funding. By 2009-10, the humanities received .004% of the federal R&D budget (Britt, 2012). Meanwhile, funding for science and technology research grew at significantly higher levels than did funds for the humanities (Britt, 2010; National Endowment for the Humanities [NEH], 2008, 1997). Further, because humanists rarely consult or otherwise generate revenues from private industry, the humanities remain more dependent upon direct public support than other disciplines and fields (Donoghue, 2008; Hanley, 2005). Humanists themselves have labeled the humanities useless, in decline, or "ruined" (Fish, 2008; Koritz, 2007; Readings, 1996). Even the Chairman of the NEH perceived a "crisis" in these disciplines (Leach, 2010).

Despite concerns about the state of the humanities, descriptive figures suggest that widespread program closures have not occurred. In the aggregate, the humanities' position appears stable. Indeed, baccalaureate degrees in English language and literature increased from 51,064 in 1991 to 55,038 in 2008 (National Center for Education Statistics, 2010, Table 282, see also Geiger, 2010), while doctorates conferred in the humanities declined only slightly from 5,213 in 2000 to 4,759 in 2010 (NSF, 2011). Further, the share of total colleges and universities that offer degrees in the humanities has declined only slightly over the same time period (Brint, Proctor, & Hanneman, 2011; Brint, Proctor, Murphy, Turk-Bicakci, & Hanneman, 2009; Zuckerman & Ehrenberg, 2009).

Some scholars who emphasize the stability of the humanities rest their case on organizational ecology, a sociological theory that explains organizational birth, death, and change as responses to constraints and opportunities embedded within the resource environment. Such analyses typically focus on the density of organizations across time and space, similar to research on populations of animal species (Freeman, Carroll, & Hannan, 1983, Carroll, 1984). More recent organizational ecology theory has undertaken studies of the adoption of new academic fields (Brint, et al., 2012; Brint, Proctor, & Hanneman, 2011; Brint, et al., 2009; Olzak & Kangas, 2008), focusing not only on the external environment but also treating intra-organization features as microhabitats that provide resources for academic programs. The intra-organizational resource mix makes particular colleges and universities more or less likely to support specific academic fields. That is, even if general environmental conditions disfavor the humanities, the conditions at a particular institution may prove favorable to the humanities for a variety of local reasons. For example, Brint and his colleagues (2009) found that universities with a wide array of academic programs are ripe for the development and institutionalization of

interdisciplinary offerings that include the humanities because these microhabitats provide both the conditions for cross-disciplinary collaboration and the resources to sustain such initiatives.

While organizational ecology provides a useful lens through which to conceptualize the growth, stability and decline of various fields, it may mask the complexity of the situation faced by the humanities. Organizational ecology considers microhabitats to be idiosyncratic and does not generalize their relationship to environmental conditions. In other words, it lacks an explanation of why microhabitats generally are able to shield fields such as the humanities from unfavorable conditions. Moreover, organizational ecology as deployed in the study of higher education takes as its population all colleges and universities, and does not look at how stability of fields may vary by institutional sector, level, and control. These factors may pattern organizations' responses in meaningful ways.

For these reasons, we employ resource dependency theory to conceptualize organizations' responses to changes in quasi-market conditions. Pfeffer and Salancik's (1978) classic articulation of this theory posits that organizational structures and activities reflect the organization's relationship to sources of financial, human, and other resources. That is, organizational managers do not seek to develop an optimal structure for technically efficient production, but attempt to maximize and secure important sources of inputs. Although this body of theory initially addressed for-profit firms, its application to educational and non-profit organizations has been widespread (Froelich, 1999). For colleges and universities, resource dependency theory posits that changes in the preferences of resource providers will predict changes in curricular offerings. If policymakers fund science research at the expense of NEH

allocations, and if students elect to enroll in business or other pre-professional programs rather than in the humanities, then campus officials will de-emphasize the humanities in an attempt to appeal to those who award grants, contracts, and tuition resources. In implicit recognition of this perspective, many commentators cite the rise of dependence on external revenues as a significant contributor to the diminished position of the humanities at U.S. colleges and universities (Bok, 2003; Dangerfield & Engell, 2005; Donoghue, 2008; Hanley, 2005).

Academic capitalism theory elaborates upon the classic resource dependency model by expounding upon the role of governments in establishing competition for resources (Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004). In this account, colleges and universities compete in "quasi-markets,"[4] meaning sites characterized by competition but lacking the other characteristics of economic markets (e.g., the free flow of labor, products, and capital). Quasi-markets assume these particular shapes because they arise through government creation rather than through solely economic processes. Academic capitalism theory therefore implies that the condition of the humanities does not simply reflect the demands of resource providers, but also indicates the priorities of policymakers who help to create the quasi-markets in which organizations compete for resources. Quasi-market conditions encourage students to enroll in programs that provide credentials to enter particular occupations, and valorize science and engineering research (Slaughter & Rhoades, 2004). In both instruction and research, then, quasi-market conditions may provide powerful incentives for colleges and universities to de-emphasize the humanities.

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[4] Quasi-markets is not a term initially used in academic capitalism theory as advanced by Slaughter and Leslie (1997) or Slaughter and Rhoades (2004). However, the concept is broadly consistent with academic capitalism theory and is used here for conceptual specificity by distinguishing the spaces in which colleges and universities compete from laissez-faire markets.

Data and methods

Data

We used data from four sources. First, we relied on the Delta Project, which standardized figures collected by the National Center for Education Statistics (NCES) from 1987 through 2008. Second, we accessed NCES data that had been standardized by NSF. We utilized NSF's allocation of degrees into "broad fields" of study, and coded degrees in the broad fields of humanities, arts, and religion and theology as "humanities" degrees.[5] We also utilized NSF data for control variables such as R&D expenditures. Third, we utilized data on gifts from all sources – hereafter designated as "gifts" – and endowments from the Council for the Advancement of Education (CAE). Finally, we utilized information on standardized test scores provided by the College Board's (2011) *Annual Survey of Colleges*.

Because these datasets offered standardized variable definitions, we employed only minimal transformations. We use the Higher Education Price Index (HEPI) to control for inflation. We also controlled variables for organizational scale by dividing total revenues from a particular source by the institution's full-time equivalency (FTE) enrollment.[6] Finally, in order to

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[5] We include theology in our definition of the humanities because this field proves closely linked to the humanistic study of religion in "Religious Studies" departments. The total number of degrees conferred in religion and theology by sampled colleges and universities is quite small, and is highly unlikely to shape our results in a substantive way. See Reuben (1996) for the transformation of religious study in US higher education.

[6] An alternative means of controlling for institutional scale involves using the natural logarithm of total funds. This approach imposes a non-linear transformation on the data, reflecting the assumption that a linear increase in the independent variable predicts a non-linear change in the

facilitate ready interpretation of marginal effects we utilized finance figures measured in thousands of dollars per FTE, and measured human resources per 100 FTE.

Analytic strategy

The theoretical model that we outline in this paper posits that higher education institutions respond in particular ways to quasi-market conditions. This relationship assumes that measures of revenues collected from the quasi-market predict a given organization's level of emphasis on the humanities. We utilize "fixed effects" ("FE") panel regression to subject this claim to empirical verification. In this technique, a series of indicator variables control for all between-institution differences, meaning that estimated coefficients indicate predicted changes in the behavior of a particular organization (Zhang, 2010). Such an approach proves ideally suited to our research, which explores the ways in which a particular college or university responds to quasi-market conditions. A Hausman specification test also indicates that FE estimation provides more reliable coefficient estimates than would random-effects analysis (Cameron & Trivedi, 2010).

The use of the FE technique means that we do not include a variety of time-invariant institutional characteristics, such as geographic region, that are captured by the fixed unit-level

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dependent variable. Such a transformation is appropriate for the analysis of phenomena such as graduation rates that are upward bounded. However, we foresee no conceptual reason to posit that tuition or federal grants and contracts revenues are upward bounded; indeed, revenues from these two sources have increased dramatically over the study period, and Bowen's (1980) classic theory of higher education costs posits that revenues and expenditures will extend upward indefinitely, with the latter bounded only by the former. For these reasons, we contend that the allocation of funds, human resources, and other measures per FTE proves the best means by which to control for institutional scale.

effect. However, we do include "fixed time effects" because an F test indicated that these

variables achieve joint significance. For ease of interpretation, we suppress coefficients from

fixed unit- and time-effects in our output tables. To further clarify interpretation, we note that

coefficients may be interpreted as predicting an increase of ß% in the dependent variable. This is

because our dependent variable is expressed as a percentage. However, we stress that predicted

changes are not elasticities. Coefficients should be interpreted as indicators of additive rather

than multiplicative changes.

　　　While we acknowledge the temporal dimension of our dataset through the inclusion of a

series of dummy variables representing (t-1) years, we also contend that time may prove

particularly important in our analysis. That is, because the humanities crisis unfolded over time,

the relationship between humanities emphasis and institutional revenues may be different in

1988 than in 2008. We therefore estimate two separate sets of regression models. The first

assumes that the relationship between revenues and humanities emphasis is stable, while the

second includes an interaction term that allows this relationship to vary over time.[7] This

approach parallels the analytic techniques employed by Zhang and his colleagues in their

exploration of relationships between university revenues and expenditures (Leslie, et al., 2012).

　　　The consequences of academic capitalist processes differ among different organizations

(Mendoza, Kuntz, & Berger, 2012). For this reason, we distinguish between public and private

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[7] We utilize a log-linear time trend in order to scale the variable of time. Use of a simple linear time trend assumes that the influence of time is dramatic, growing from 0 in the study's initial year to 20 in its 21st year. The use of a logarithmic transformation addresses concerns of scale by allowing time to grow from zero to approximately three in the twenty-first year. Although we present only results that include a linear time trend, we estimated supplementary models that utilized a linear time trend. Results substantially paralleled those reported in the paper. Additionally, we note that, while interactions require the inclusion of both of the interacted terms in the equation, we do not include the time trend variable itself in the models because this variable covaries perfectly with the fixed time effects.

institutions, which generally exhibit different revenue and expenditure patterns (Desroches & Wellman, 2011). Further, we distinguish between two distinct quasi-markets that our theoretical model suggests may disfavor the humanities. We consider both BCs that are deeply embedded in the quasi-market for tuition receipts, and RUs that compete for federal grants and contracts.

BCs. Because our first research question investigated colleges' instructional enterprises, we utilized the share of baccalaureate degrees conferred in the humanities as the dependent variable. We measured commitment to the humanities as a percentage of total degrees rather than as the number of degrees to ensure that we did not simply measure the scale of a university's undergraduate enterprise. Our primary independent variable of interest was net tuition revenues (in constant 2008 dollars). From our theoretical framework, we expected the coefficient on this variable to be negative and significant.

We also included a range of control factors that might predict humanities emphasis. First, we reasoned that colleges might emphasize the humanities, which do not have independent programmatic accreditors that audit student-to-faculty ratios, as they grew in size. We included three measures of size: the ratio of full-time faculty members to FTE enrollment, FTE count, and a squared FTE term to test for possible diseconomies of scale. Second, we considered that humanities emphasis might respond to revenues drawn from other quasi-markets. We therefore included state appropriations per FTE for public colleges, and endowment holdings and gifts per FTE for private institutions.[8] We also included general subsidy per FTE, Winston's (1999)

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[8] Few of the sampled public public BCs report endowment values to CAE or the National Association of University Business Managers (NACUBO). The inclusion of either of these variables reduced our sample to fewer than 40 institutions and fewer than 400 total observations.

measure of a college's contributions to educational expenditures, as a means of recognizing the

institutional subsidies that prevent tuition from functioning as a laissez-faire market. Third, we

reasoned that expenditures intended to support holistic education, and that therefore

characterized a classic liberal arts education (Breneman, 1994), might predict humanities

emphasis. We therefore included student services expenditures per FTE. Fourth, due to the

importance of admissions selectivity in explaining colleges' financial positions (Morphew &

Taylor, 2010), we considered that entering students' standardized test scores might predict

humanities emphasis.

Historically, BCs had little access to non-tuition revenue sources (Toutkoushian, 2001).

For this reason, we limited our sample to public and private not-for-profit institutions classified

as BCs by the Carnegie Classifications of 2005. Removing institutions that did not report values

on one or more variables of interest for each of the sampled years left a sample of 70 public and

305 private colleges. We observed these colleges annually from 1992 through 2008.[9]

RUs. Because our second research question investigated universities' research enterprises,

we utilized the percentage of doctoral degrees conferred in the humanities as our dependent

variable. We cast federal grants and contracts revenues (in constant 2008 dollars) as our primary

independent variable. We used federal awards because the federal government funded the largest

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We believe this loss of information to be too great to be warranted. For this reason, we omit
these variables from our analysis of public BCs.
[9] Although the Delta Project dataset includes data from 1987-1991, that database does not
include information on admission selectivity during those years. We begin our analysis of BCs in
1992 because this is the earliest year for which we have College Board data.

share of total university-based R&D expenditures over sampled years (Britt, 2010). We expected the relationship between these variables to be negative and significant.

We also included a range of control factors that might predict humanities emphasis among RUs. First, we included revenues from other quasi-markets. Among these were state appropriations for public universities and net tuition and fees revenues, total endowment holdings, and gifts for both public and private universities. Second, we considered institutional expenditures related to research because university officials may authorize these expenditures in the expectation of increasing external resource funding, including federal grants and contracts (Ehrenberg, Rizzo, & Jakubson, 2007). We also included expenditures on academic support, which funds facilities such as laboratories and libraries that buttress research initiatives. Third, we included two measures of human resources associated with research: the number of full-time faculty members[10] and the number of non-faculty research staff such as lab managers and postdoctoral associates. Fourth, we included a measure of a university's emphasis on baccalaureate-level instruction in the humanities. This controls for the possibility that a university may emphasize some work in the humanities (ie., undergraduate instruction) while de-emphasizing other work in those fields (ie., graduate-level education). Finally, we included both FTE enrollment count and the square of this term to test for possible diseconomies of scale.

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[10] Zhang and Ehrenberg (2010) demonstrate that the percent of tenure-line faculty proves a better predictor of R&D expenditures than does the percent of faculty who are full-time. These authors also note, however, that data on tenure-line faculty are not available through the IPEDS surveys after 1999-2000. Zhang and Ehrenberg successfully imputed missing values from 2000-2004 for their analysis. Because the time period of our study extends through 2008, however, utilizing Zhang and Ehrenberg's technique would result in the imputation of almost one-half of the data on this variable. For this reason, we opt for the share of faculty who are full-time. We also estimate a series of supplementary analyses in which we utilize the percent of faculty on the tenure line and restrict our temporal sample to 1988-1999. These results substantially parallel those reported in the paper.

Because a small number of institutions collect the majority of federal grants and contracts

funds, we limited our sample to institutions that the Carnegie Classification of 2005 identified as

"RUs (very high activity)" or "RUs (high activity)." Removing institutions that did not report

values on one or more variables of interest[11] left a sample of 108 public and 53 private

universities. We observed these universities annually from 1988 through 2008.[12]

Limitations

We acknowledge several limitations to our study. First, while FE analysis controls for

unobserved organizational heterogeneity, our results remain associational rather than causal

because we do not utilize experimental data (Murnane & Willett, 2011). While we believe the FE

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[11] We removed the University of Puerto Rico at Rio Piedras because this institution is not located within a U.S. state. Two institutions – Rutgers University and the University of Colorado – appeared in NSF's "Survey of Research and Development Expenditures at Universities and Colleges" only as aggregated systems. This survey provides important data on universities' &D expenditures. Because multiple campuses from these systems are included in our sample, we omit all of these institutions from our analysis. We elect to include this variable and forsake other information about these campuses because institutional expenditures on R&D constitute a conceptually important covariate whose omission might bias results (Ehrenberg, Rizzo, & Jakubson, 2007). We also omitted five institutions that completed this survey, but reported no institutional R&D expenditures during the survey period. Additionally, six institutions did not report a value for full-time non-faculty research staff on this survey. We believe that this variable is crucial to our analysis because universities increasingly rely on contingent laborers rather than traditional full-time faculty members (Schuster & Finkelstein, 2006). Accordingly, we judge this variable to be of sufficient conceptual importance to justify the loss of observations that its inclusion entails.

[12] We omit the year 1987 because data on the measure of full-time faculty members per 100 FTE and research staff members were not available in the Delta dataset for that year. We also omit the year 1999 because NSF did not standardize NCES data on degrees for that year; NCES figures for this year were not made publicly available due to changes in IPEDS reporting conventions. In supplementary analyses, we replaced the missing values for 1999 with the simple per-institution mean of 1998 and 2000 values. These analyses substantially paralleled those that omitted 1999 observations. To ensure that our analysis rests only upon reported data, however, we include only results from analyses that omitted 1999 figures.

approach to be an adequate safeguard, and have conducted supplementary analyses[13] to ensure

that our results are not contingent upon estimation strategy, results should be interpreted with

some caution. In particular, restraint should be used when generalizing results to higher

education more broadly. Our sample emphasizes institutions that rely heavily upon revenues

gleaned from particular quasi-markets. This develops a useful sampling frame through which to

refine the concept "quasi-market," but also leads us to neglect other institutional types, such as

comprehensive universities and community colleges, that are not as clearly enmeshed in a single

quasi-market as are the samples studied herein.

Second, because of limits to data availability, our study period concludes prior to the

financial crisis of 2008. Given the effect the crisis has had on higher education finances, future

studies are needed to assess the extent to which this has reshaped quasi-markets in higher

education. We elaborate on this limitation in our concluding section.

Third, this study considers revenues but not expenditures. Emphasis on the humanities

may be associated with diminished revenues in particular quasi-markets, but nonetheless may be

"profitable" because education in the humanities may be delivered relatively inexpensively.

Indeed, surplus revenues generated by the humanities might actually subsidize the expensive

activities undertaken by other departments; similarly, through general education humanities

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[13] Because humanities emphasis and revenues in particular quasi-markets may influence one another rather than one being wholly dependent upon the other, we utilize two-stage least-squares regression ("2SLS") in supplementary analyses. This strategy allows us to predict variance in an independent variable (revenues derived from a particular quasi-market) using an "instrumental" variable that does not substantively predict variance in the dependent variable. Results of these analyses substantially paralleled those presented in this manuscript, suggesting that the fixed institution-level effects provide an adequate control for simultaneous determination.

instruction may prove essential to an institution's ability to generate baccalaureate degrees in all

fields. Unfortunately, detailed and accurate instructional cost data by field within institutions

over time are not widely available. We acknowledge this limitation by emphasizing that our

results indicate the ways in which organizations have responded to environmental conditions, but

do not imply that the humanities are money-losing activities.

Institutional revenues and humanities emphasis

In this section, we present empirical results in response to our research questions. We

begin with an exploration of the descriptive characteristics of each sample. Thereafter, we

present results from regression analyses that employ fixed unit- and year-level effects. Our

interpretation of regression results pays particular attention to the relationship between revenues

drawn from particular quasi-markets and humanities emphases. We provide brief commentary on

results related to control variables but, for reasons of space, we do not explore these results

extensively.

Tuition revenues at BCs

Descriptive analysis. Table one presents descriptive statistics on selected variables for

sampled BCs from 1992 to 2005. A brief review of these figures indicates the appropriateness of

considering public and private colleges as distinct sub-samples. On average, despite substantial

within-group variation, public colleges are larger than their private peers as measured by FTE

enrollment. Private colleges on average control more tuition resources per FTE than do public

colleges, although this difference partly reflects the larger mean FTE enrollments of public

colleges. The mean value of per FTE gifts to private colleges also slightly exceeds that of per

FTE state appropriations for public institutions. Importantly, however, private institutions are

widely dispersed about these means. In other words, the mean for private institutions seems to result from a number of institutions that command large net tuition and gifts receipts averaged together with a number of less-wealthy schools.

Because panel data sets include multiple observations of the same colleges over time, the figures in Table 1 describe the entire sample across all institutions and years. In order to illustrate the temporal dimension of these data, we also present selected descriptive figures as they change from one year to another. Figure 1 depicts public BCs from 1992 through 2008.[14] The share of baccalaureate degrees conferred in the humanities fell, steadily but unevenly, throughout the study period. By contrast, net tuition and fees receipts per FTE rose during the same period of time. Private BCs, as depicted in Figure 2, exhibit the same basic pattern as do public colleges. The percentage of baccalaureate degrees drops dramatically in the mid-1990s, and remains below 23.5% throughout the remaining decade of the study period. As humanities emphasis declines, however, net tuition and fees revenues per FTE rise. These descriptive figures suggest that increased revenues from the quasi-market for tuition may predict decreased humanities emphasis. We test this proposition more rigorously in the regression analyses that follow.

Notably, the humanities prove more extensive at private colleges than at public institutions. On average, public colleges confer between 8.5% and 11.5% of total baccalaureate degrees in the humanities. Among private institutions, the same figure varied between 21.5% and 25%. These figures suggest that, on average, private BCs both confer a larger share of their degrees in the humanities and collect more net tuition and fees revenues than do public colleges.

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[14] As noted previously, reported data for 1999 are not available through NSF's WebCASPAR portal. Figures for 1999 represent a simple mean of 1998 and 2000 figures, and so should be interpreted with caution.

Accordingly, private institutions may face greater exposure to the quasi-market conditions that disfavor the humanities than do their public peers.

 Regression analysis. Table 2 presents results of a FE panel analysis of public BCs from 1992 to 2008. The first column of this table presents results without a temporal interaction, while the second column allows the relationship between humanities emphasis and revenues derived in the quasi-market for net tuition and fees to vary over time. Both sets of results indicate that net tuition revenues per FTE do not significantly predict the proportion of baccalaureate degrees conferred in the humanities at public colleges. However, the standardized test scores of a college's entering class prove a useful predictor of net tuition receipts. In the first column, net of other factors, an increase of one point on the 75th percentile SAT-Verbal score predicts that the share of baccalaureate degrees conferred in the humanities increases by approximately 0.02 percentage points. Because this variable assumes values between 200 and 800 ($\mu \cong 545.78$) and is fairly widely distributed ($\sigma \cong 59.46$), this relationship can net substantial results at a particular college. This suggests that, as a college's students attain higher scores on standardized tests of verbal proficiency, a larger proportion of these students select majors in the humanities.

 Table 3 reports results for private BCs. The first column, which does not employ a temporal interaction term, indicates no significant relationship between humanities emphasis and revenues collected in the quasi-market for net tuition and fees. When the interaction term is added in the second column model, however, model fit improves significantly, and the relationship between these two dimensions of a college becomes clearer. What initially appears to be an insignificant relationship instead becomes a positive association that attenuates over time. In the initial year of the study – when the interaction term assumes a value of zero – the

relationship between net tuition and fees revenues and humanities emphasis is represented by the first coefficient in column two. That is, net of other factors, in 1992 a college that witnessed a $1,000 per FTE increase in net tuition and fees could expect to see an increase of one percentage point in the share of degrees conferred in the humanities. However, this positive relationship eroded over time. Figure 3 traces this projected decline through the end of the study period. By the study's fourteenth year, the relationship between humanities emphasis and revenues gleaned

in the quasi-market of tuition had turned negative. In other words, despite the initial positive association between tuition revenues and humanities emphasis, by 2006 the relationship between revenues and humanities degrees paralleled that predicted in our conceptual model.

Federal grants and contracts revenues at RUs

Descriptive analysis. Table four presents descriptive statistics from our analysis of RUs. These figures indicate several key characteristics of sampled universities. First, private RUs are much smaller than their public peers, with average enrollments approximately half the size of those at public RUs. Second, and related to the different scales of these subsamples, private RUs control far greater financial resources per FTE than do public institutions. However, privates also prove more widely dispersed about the mean than do public universities, again suggesting greater heterogeneity among the private subsample.

As above, we also report selected descriptive data over time in order to acknowledge the panel nature of our dataset. Data for sampled public RUs appears in Figure 4. In contrast to the predictions from our conceptual models, the share of degrees conferred in the humanities and revenues from federal grants and contracts closely paralleled one another. Figure 5 indicates that private RUs also followed this pattern until the early 2000s. At that point, federal grants and contracts revenues continued to increase while the share of doctoral degrees conferred in the

humanities dropped notably. This implies that private RUs may respond to quasi-market conditions that disfavored the humanities. We now turn to regression results that test this proposition more formally.

Regression analysis. The first column of Table 5 presents results from our analysis of public RUs from 1988 through 2008. As in the analysis of public BCs, the percent of doctorates awarded in the humanities at public RUs does not appear to vary based upon conditions in the quasi-market for federal grants and contracts. Several control characteristics, however, provide useful predictors of the share of doctorates conferred in the humanities. For example, net of other factors, an increase of $1,000 per FTE in industry funded R&D expenditures predicts a decline of 0.4 percentage points in the dependent variable. This likely reflects the preference of industry funding sources for research in "close to the market" fields such as the applied sciences rather

than for projects undertaken in the humanities. The percent of baccalaureate degrees awarded in the humanities also predicts doctoral-level emphasis. An increase of one percentage point in this area, net of other factors, predicts that the share of doctorates conferred in the humanities will increase 0.3 percentage points. This indicates that a public university may emphasize the humanities generally, rather than participating in the humanities only on some levels of instruction. Finally, growth in the market value of a university's endowment negatively predicts

the share of doctoral degrees conferred in the humanities. However, the predicted change proves sufficiently small that this relationship is not substantively significant. A university could increase its per FTE endowment by the mean value of this variable ($\mu \cong \$20,5000$) and still be expected to experience less than half a percentage point change in the dependent variable.

The second column of Table 5 presents results from our analysis of private RUs. In keeping with our conceptual model, these results indicate that revenues collected in the quasi-market for federal support indicate a decline in the share of doctorates that a university conferred in the humanities. Net of other factors, an increase of $1,000 per FTE in federal grants and contracts predicts that the share of doctorates conferred in the humanities will decline by 0.1 percentage point. Sampled private universities received an average of approximately $17,900 per FTE in federal grants and contracts during the study period. A change of one-half of one standard deviation – approximately $8,600 per FTE – would predict a change of almost one percentage point in the share of doctoral degrees conferred in the humanities. This relationship therefore attains both statistical and substantive significance. Private RUs, in other words, appear to respond to quasi-market structures by reshaping their doctoral emphases.

Several control characteristics also explain variation in humanities emphasis at private RUs. Net of other factors, an increase of $1,000 per FTE in gifts predicts that the share of doctorates conferred in the humanities will grow by .07 percentage points. Although this relationship appears small, it attains substantive significance because the variable "gifts" is widely dispersed ($\sigma \cong \$10,864$), meaning that a university may plausibly increase its gifts per FTE by more than $1,000 in a given year. This implies that revenues gleaned in other arenas may partially offset the effects of the quasi-market for federal grants and contracts. Evidence on institutional infrastructure proves mixed. A private university's full-time faculty per 100 FTE proves a negative predictor of humanities emphasis, while growing expenditures on academic support predict increases in the dependent variable. Finally, net of other factors an increase of a single percentage point in the share of baccalaureate degrees conferred in the humanities predicts

an increase of 0.5 percentage points in the dependent variable. Private RUs, like their public peers, seem to emphasize the humanities at multiple levels of instruction.

Although we conduct analyses in which we interact quasi-market variables with time, we omit these results because the interaction terms do not significantly improve model fit. This proves to be the case even when all external R&D funds are interacted with time ($F<0.0841$ for public universities; $F<0.5934$ for private universities). These results suggest that, in contrast to private BCs, the relationship between humanities emphasis and quasi-market revenues proves stable among sampled RUs.

Quasi-markets and the humanities crisis

In this paper, we explore the nature of quasi-markets in US higher education. We conceptualize quasi-markets as spaces that disfavor activities that are not targeted by policy makers, such as the humanities. We then utilize resource dependency and academic capitalism theories to posit the responses of campus officials to these environmental conditions. This theoretical model guides our exploration of the condition of the humanities in two distinct quasi-markets: net tuition receipts for BCs, and federal grants and contracts revenues for RUs. Regression results provide qualified support for the proposition that changing quasi-market conditions prompt colleges and universities to de-emphasize the humanities. This prediction appears to characterize private institutions. A private RU appears to decrease the share of doctoral degrees conferred in the humanities as it increases its revenues from federal grants and contracts. Further, although private BCs increased their humanities emphasis along with their tuition receipts early in the study period, this relationship turned negative over time. Private institutions respond to the logics and incentives of quasi-markets.

Yet our results provide disconfirmatory evidence alongside these expected findings. Public institutions appear not to respond to quasi-market conditions as readily as do their private peers. The most immediate explanation for this is the direct subsidy that public colleges and universities receive from state governments. Although formula funding often ties state appropriations directly to enrollments, state appropriations are rarely linked to students' selected majors. Notably, the relationship between appropriations and humanities emphasis is not significant in either regression analysis. Nonetheless, because funds may be reallocated within a university, state appropriations may support activities like the humanities that rarely secure revenues in competitive settings. Public universities' state block grants may enable them to shelter the humanities from the pressures of quasi-market competition to some degree, offering a haven for activities disfavored by quasi-market that are nevertheless perceived to be in the public interests.

However, the post-2007 fiscal crisis and political climate may dampen any source of optimism for the humanities at public universities. State appropriations to higher education have declined precipitously over recent decades (Rizzo, 2006) and this trend likely accelerated following the recent recession. Insofar as state appropriations provide public institutions with the subsidy necessary to operate humanities departments alongside the programs that are privileged by quasi-market logics, the decline in these appropriations may subject the humanities at public institutions to quasi-market discipline similar to that faced by their private peers. This highlights an important limitation of our analysis. As mentioned above, our sample extends only through 2008, at which time the fiscal crisis facing many state governments was in its early stages. Future research may discover changes in the behavior of public colleges and universities.

There are compelling conceptual bases to think that such changes may indeed occur. Zuckerman and Ehrenberg (2009) note that elite private institutions continue to pursue the humanities at relatively high levels because earnings from their large endowments provide sufficient funds to do so. This explanation proves consistent both with the positive association that we identify between gifts and humanities emphasis at private universities, and with previous research (Archibald & Feldman, 2008) suggesting that elite private institutions such as Yale University and Dartmouth College operate far from the frontier of economic efficiency. These pieces of evidence suggest that humanities instruction may recede into the small number of elite institutions that can afford the luxury of quasi-market-inefficient activities. Where the humanities have been the province of institutions insulated from quasi-market forces by state subsidy, they may become the domain of institutions insulated by decades of accumulated advantage. Additional years of data, particularly those collected after economic recession and state budget crises began in 2008, may reveal just such an inversion.

An additional possibility for future research arises from the variable definitions that we employ. Our analysis considers "the humanities" broadly because extant scholarship –

particularly from commentators in the humanities – tends to treat these disciplines as a coherent

group. Yet it is possible that some sub-fields are affected by quasi-market logics than others. The high rate of closure among classics and language departments (Brint, et. al, 2012) supports this proposition. Additional research could consider this possibility by exploring the relationship of the various humanities fields to one another.

Data also could be disaggregated into distinct sub-samples based on variables of interest. In our analyses of descriptive data, we note that private colleges and universities tend to be

widely dispersed around mean values. This suggests that an analysis that stratified cases into various sub-samples based on characteristics such as endowment resources and admission selectivity for privates, or state population for publics, might yield different results than those presented in our analysis. For example, public universities in states with growing populations may find that expanding tax bases and heightened student demand create sufficient resources to facilitate the preservation of the humanities.

Finally, we note that the implications of our research apply only to the relationship between organizational commitment to the humanities, as measured by share of degrees conferred, and revenues secured through competition in quasi-markets. As with other research on this topic we are unable to assess the state of the humanities fully. For example, we pay little regard to the labor conditions of humanities faculty. An analysis that accounted for the differences between the work life of humanists and their peers in more advantaged fields and disciplines may show the state of the humanities to be direr than our analysis suggests. Prior research implies as much, demonstrating that humanists on average earn substantially lower salaries than do faculty members who hold similar rank in fields such as law, medicine, and the sciences (Hearn, 1999). Conversely, a study that considered department-level factors rather than institutional data might find that the humanities proved profitable because work in these fields can be conducted relatively inexpensively.

Despite these important limitations, our results substantially illuminate the effects of quasi-market conditions on the humanities in contemporary U.S. higher education. Neither the general state of attrition identified by some humanists (e.g., Donoghue, 2008) nor the sanguine outlook that stems from a focus on the ongoing awarding of humanities degrees (e.g., Brint, Proctor, & Hanneman, 2011; Brint, et al., 2009; Geiger, 2010) appears to characterize all of

higher education. While the death of the humanities may be asserted broadly, it occurs in particular quasi-markets. Our findings indicate that, when quasi-market conditions favor non-humanities forms of instruction and research, administrators at private colleges and universities face powerful incentives to de-emphasize the humanities. Humanists at public institutions face the disconcerting question of whether the retreat of direct state support for higher education will subject their departments to a similar fate. Such a question highlights the salience of quasi-market conditions is shaping the state of the humanities within particular organizations.

Possible futures for the humanities

In contrast to population ecology, our approach suggests that the humanities are not stable. Private sector institutions seem to be most responsive to quasi-markets. RUs appear to have de-emphasized humanities doctoral programs throughout the study period, while BCs de-emphasized the humanities over time. As noted above, this study deals only with revenues and not expenditures. This limitation is especially important when considering the argument that the humanities may cross-subsidize more costly activities within individual institutions. Indeed, although the cost per credit hour for education in humanities fields is generally much lower than in STEM fields (Middagh, Grahm & Shahld, 2003), students typically pay the same sticker-price tuition fee regardless of whether they take humanities or STEM courses.[15] While the findings from our study suggest that quasi-market conditions may shape an institution's level of emphasis on the humanities, they do not imply that such a process is desirable or efficient. Indeed, it is this

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[15] Higher differential tuition is sometimes paid by students in professional programs like business, medicine, and law, but not typically in the humanities and basic sciences.

separation of efficiency from competition that distinguishes a quasi-market, which reflects policy priorities, from a true market, which reflects economic processes.

Accordingly, we find much with which to sympathize in Newfield's (2008) claim that a policy environment that disfavors the humanities proves shortsighted because the low-cost humanities are revenue positive while STEM fields tend to require large subsidies. Despite their potential as financial assets, the humanities remain disfavored by contemporary innovation and competition discourse. It is this policy climate that shapes contemporary quasi-markets for higher education, and that in turn generates the revenue streams that may prompt educational managers to ignore the costs associated with revenue-generating activities (Slaughter & Cantwell, 2012).

Given these tensions, we see three possible futures for the humanities. First, colleges and universities could respond to quasi-market conditions by cutting entire programs in the humanities, even at public universities. This may actually lead to the much-discussed death of the humanities, but also may damage institutional balance sheets by expanding only in areas that entail high costs. Second, institutions could counter current trends and invest in the humanities. This might make organizations more resilient because it is easy to keep costs low in these areas. We suspect, however, that the likeliest future will be the maintenance of the status quo in which the humanities are gradually de-emphasized in response to quasi-market incentives. Insofar as this prediction proves accurate, conditions may continue to deteriorate for those working and studying in the humanities.

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Table 1. Means of selected characteristics of public and private BCs, 1992-2008

(standard deviations in parentheses).

VARIABLES	(1) Public colleges	(2) Private colleges
Percentage of baccalaureate degrees conferred in the humanities	10.12%	22.95%
	(11.93)	(11.90)
Net tuition and fees revenues per FTE in thousands	$4.69	$14.93
	(2.02)	(5.84)
State appropriations per FTE in thousands	$8.04	-
	(5.14)	-
Market value of endowment per FTE in thousands	-	$116.74
	-	(155.13)
Total gifts from all sources per FTE in thousands	-	$8.36
	-	(6.89)
Full-time faculty per 100 FTE	5.24	7.30
	(1.62)	(2.09)
FTE enrollment count	3,228.02	1,541.63
	(4,057.36)	(728.68)
75th percentile SAT Verbal score	545.78	620.71
	(59.46)	(69.07)
Expenditures on student services per FTE in thousands	$1.76	$3.89
	(1.25)	(1.67)
General subsidy per FTE in thousands	$10.78	$9.34
	(13.94)	(7.27)
Observations	623	3,245
Number of colleges	70	305

Table 2. Share of baccalaureate degrees conferred in the humanities by public BCs, 1992-
2008.

VARIABLES	(1) Public colleges	(2) Public colleges (with temporal interaction term)
Net tuition and fees revenues per FTE in thousands	0.205	-0.490
	(0.271)	(1.588)
Interaction of net T&F revenues per FTE X log-linear time trend		0.243
		(0.510)
State appropriations per FTE in thousands	0.110	0.116
	(0.135)	(0.141)
Full-time faculty per 100 FTE	0.0862	0.129
	(0.319)	(0.259)
FTE enrollment count	-0.000816	-0.000786
	(0.000783)	(0.000723)
Square of FTE enrollment count	3.05e-08	3.06e-08
	(2.19e-08)	(2.12e-08)
75th percentile SAT Verbal score	0.0171*	0.0169*
	(0.00815)	(0.00822)
Expenditures on student services per FTE in thousands	-0.371	-0.411
	(0.271)	(0.288)
General subsidy per FTE in thousands	-0.0417	-0.0463
	(0.0524)	(0.0548)
Constant	1.089	1.319
	(4.439)	(4.569)
Observations	623	623
R-squared	0.076	0.078
Number of colleges	70	70

Robust standard errors in parentheses
** p<0.01, * p<0.05

Table 3. Share of baccalaureate degrees conferred in the humanities by private BCs, 1992-2008.

VARIABLES	(1) Private colleges	(2) Private colleges (with temporal interaction term)
Net tuition and fees revenues per FTE in thousands	-0.106	1.013**
	(0.0745)	(0.191)
Interaction of net T&F revenues per FTE X log-linear time trend		-0.387**
		(0.0660)
Market value of endowment per FTE in thousands	-0.00284	-0.000390
	(0.00249)	(0.00233)
Total gifts from all sources per FTE in thousands	-0.0412*	-0.0300
	(0.0204)	(0.0201)
Full-time faculty per 100 FTE	-0.171	-0.0933
	(0.159)	(0.157)
FTE enrollment count	-0.00620*	-0.00461
	(0.00256)	(0.00268)
Square of FTE enrollment count	1.13e-06*	9.26e-07
	(4.71e-07)	(5.34e-07)
75th percentile SAT Verbal score	0.00179	0.00634
	(0.00597)	(0.00607)
Expenditures on student services per FTE in thousands	-0.0712	-0.0756
	(0.176)	(0.169)
General subsidy per FTE in thousands	-0.0738	0.00669
	(0.0553)	(0.0525)
Constant	33.10**	27.83**
	(5.894)	(5.877)
Observations	3,245	3,245
R-squared	0.037	0.072
Number of colleges	305	305

Robust standard errors in parentheses
** p<0.01, * p<0.05

Table 4. Means of selected characteristics of public and private RUs, 1988-2008

(standard deviations in parentheses).

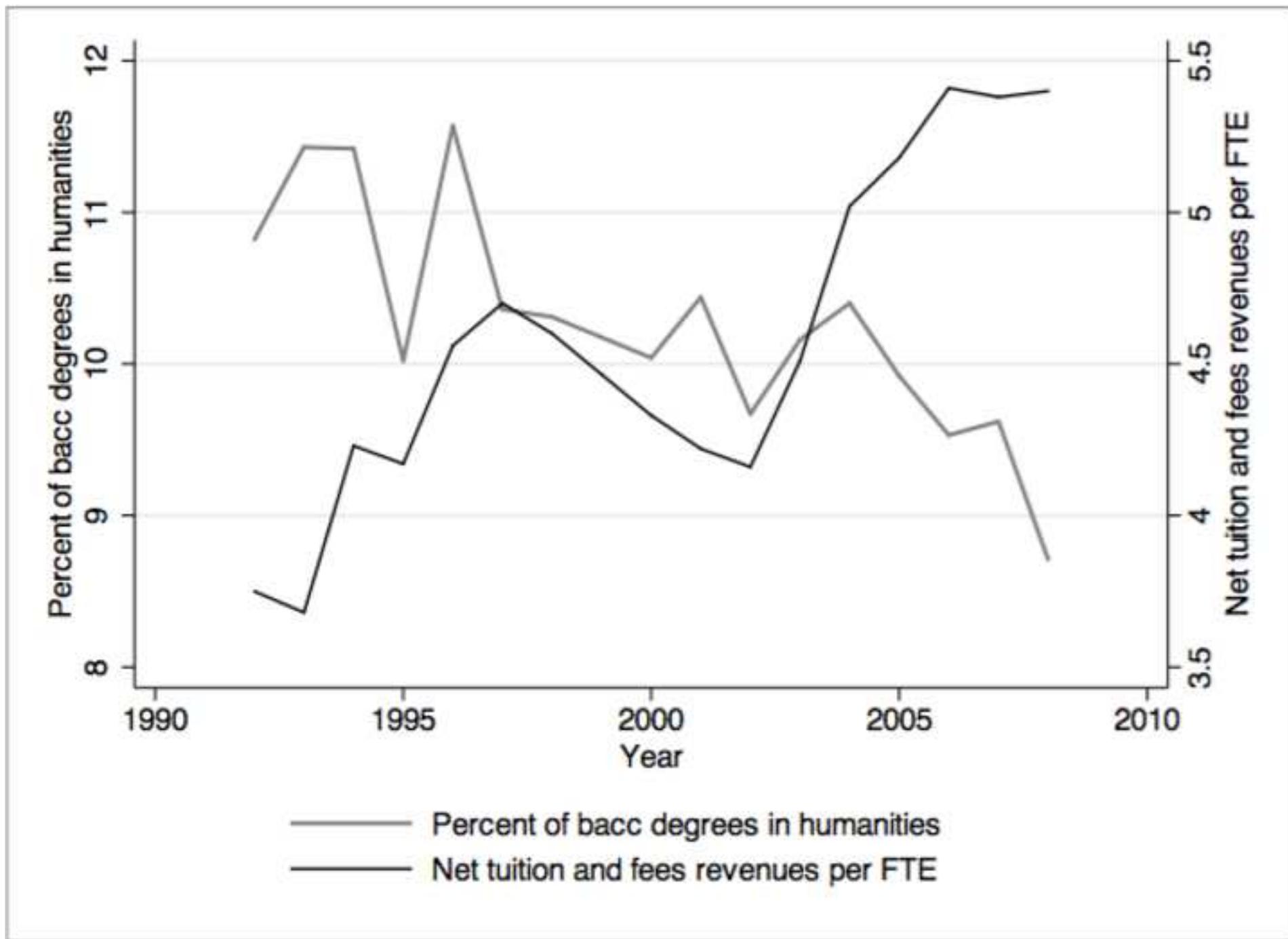| VARIABLES	(1) Public universities	(2) Private universities
Percentage of doctoral degrees conferred in the humanities	9.01%	13.17%
	(6.63)	(9.49)
Federal grants and contracts revenues per FTE in thousands	$6.35	$17.90
	(4.99)	(17.16)
Net tuition and fees revenues per FTE in thousands	$6.27	$20.36
	(2.67)	(4.41)
Revenues from state appropriations per FTE in thousands	$11.62	-
	(4.61)	-
Market value of endowment per FTE in thousands	$20.52	$239.46
	(24.52)	(316.70)
Total gifts from all sources per FTE in thousands	$3.10	$13.61
	(2.60)	(10.86)
State funded R&D expenditures per FTE in thousands	$0.81	$0.52
	(0.94)	(0.88)
Industry funded R&D expenditures per FTE in thousands	$0.56	$1.45
	(0.63)	(1.96)
Institutionally funded R&D expenditures per FTE in thousands	$2.05	$2.00
	(1.67)	(2.14)
Expenditures on academic support per FTE in thousands	$2.89	$6.64
	(1.60)	(7.61)
Full-time faculty members per 100 FTE	6.62	5.93
	(2.18)	(11.40)
Research staff per 100 FTE	0.20	0.55
	(0.262)	(0.89)
FTE enrollment count	24,081.29	11,575.14
	(16,873.81)	(6,511.47)
Percentage of baccalaureate degrees conferred in the humanities	8.37	12.02
	(4.37)	(8.24)
Observations	1,539	849
Number of universities	108	53

Table 5. Share of baccalaureate degrees conferred in the humanities by public and private

RUs, 1988-2008.

VARIABLES	(1) Public universities	(2) Private universities
Federal grants and contracts revenues per FTE in thousands	-0.0896	-0.101*
	(0.0736)	(0.0395)
Net tuition and fees revenues per FTE in thousands	0.240	0.0538
	(0.162)	(0.0924)
Revenues from state appropriations per FTE in thousands	-0.0120	
	(0.0825)	
Market value of endowment per FTE in thousands	-0.0192**	0.000143
	(0.00658)	(0.00126)
Total gifts from all sources per FTE in thousands	0.171	0.0673*
	(0.0879)	(0.0281)
State funded R&D expenditures per FTE in thousands	-0.262	0.555
	(0.237)	(0.279)
Industry funded R&D expenditures per FTE in thousands	-0.416*	0.185
	(0.206)	(0.212)
Institutionally funded R&D expenditures per FTE in thousands	0.185	0.0973
	(0.113)	(0.110)
Expenditures on academic support per FTE in thousands	-0.160	0.0618**
	(0.0983)	(0.0185)
Full-time faculty members per 100 FTE	0.0877	-0.146*
	(0.0833)	(0.0664)
Research staff per 100 FTE	-0.0649	0.0608
	(0.564)	(0.448)
FTE enrollment count	8.11e-06	0.000352
	(0.000101)	(0.000476)
Square of FTE enrollment count	3.35e-10	-5.25e-09
	(3.43e-10)	(8.88e-09)
Percentage of baccalaureate degrees conferred in the humanities	0.295**	0.499**
	(0.0619)	(0.0859)
Constant	3.885	3.588
	(2.780)	(5.295)
Observations	1,539	849
R-squared	0.258	0.223
Number of universities	108	53

Robust standard errors in parentheses

** p<0.01, * p<0.05

Figure

Figure

Figure

Figure

Legend:
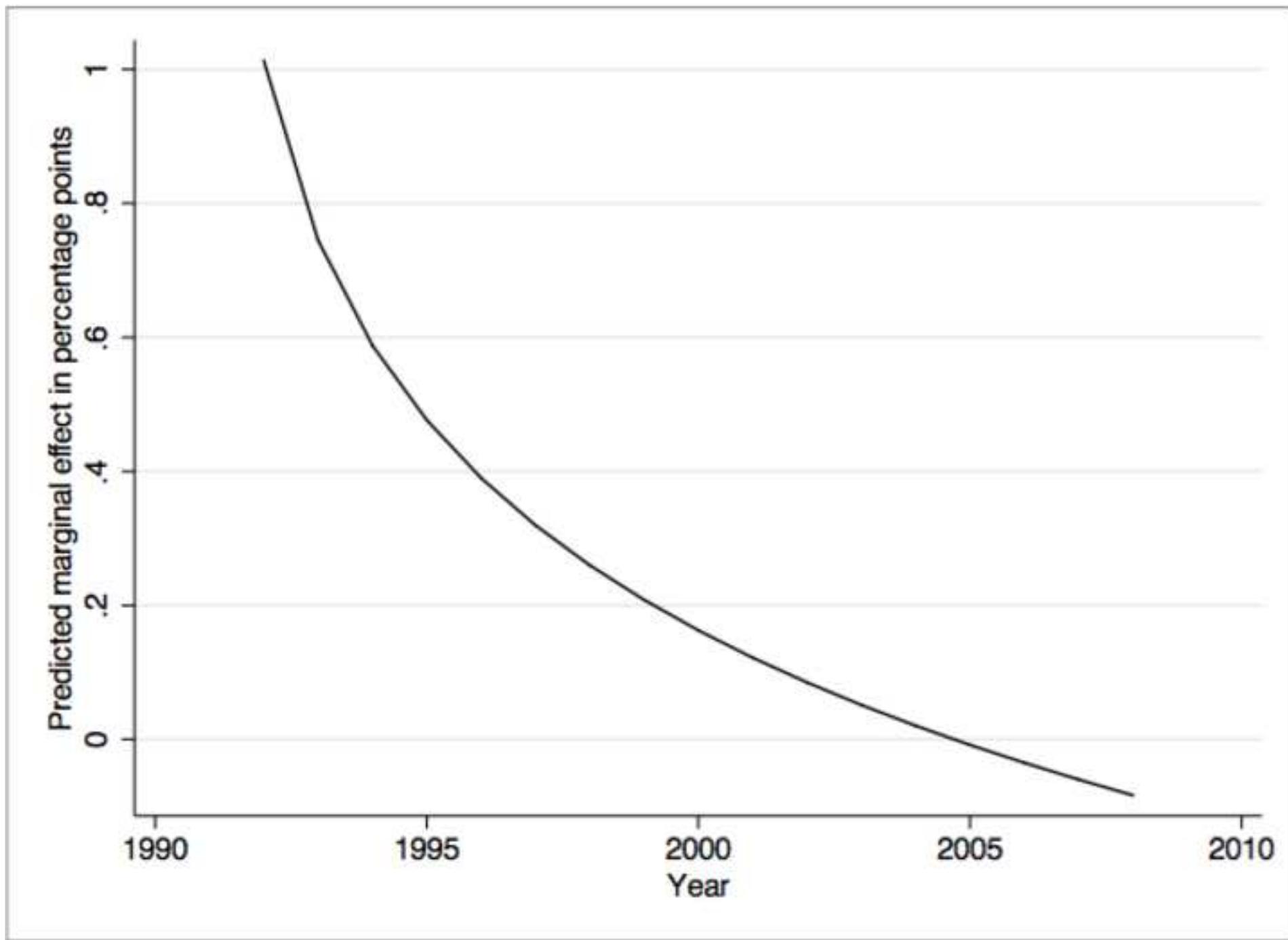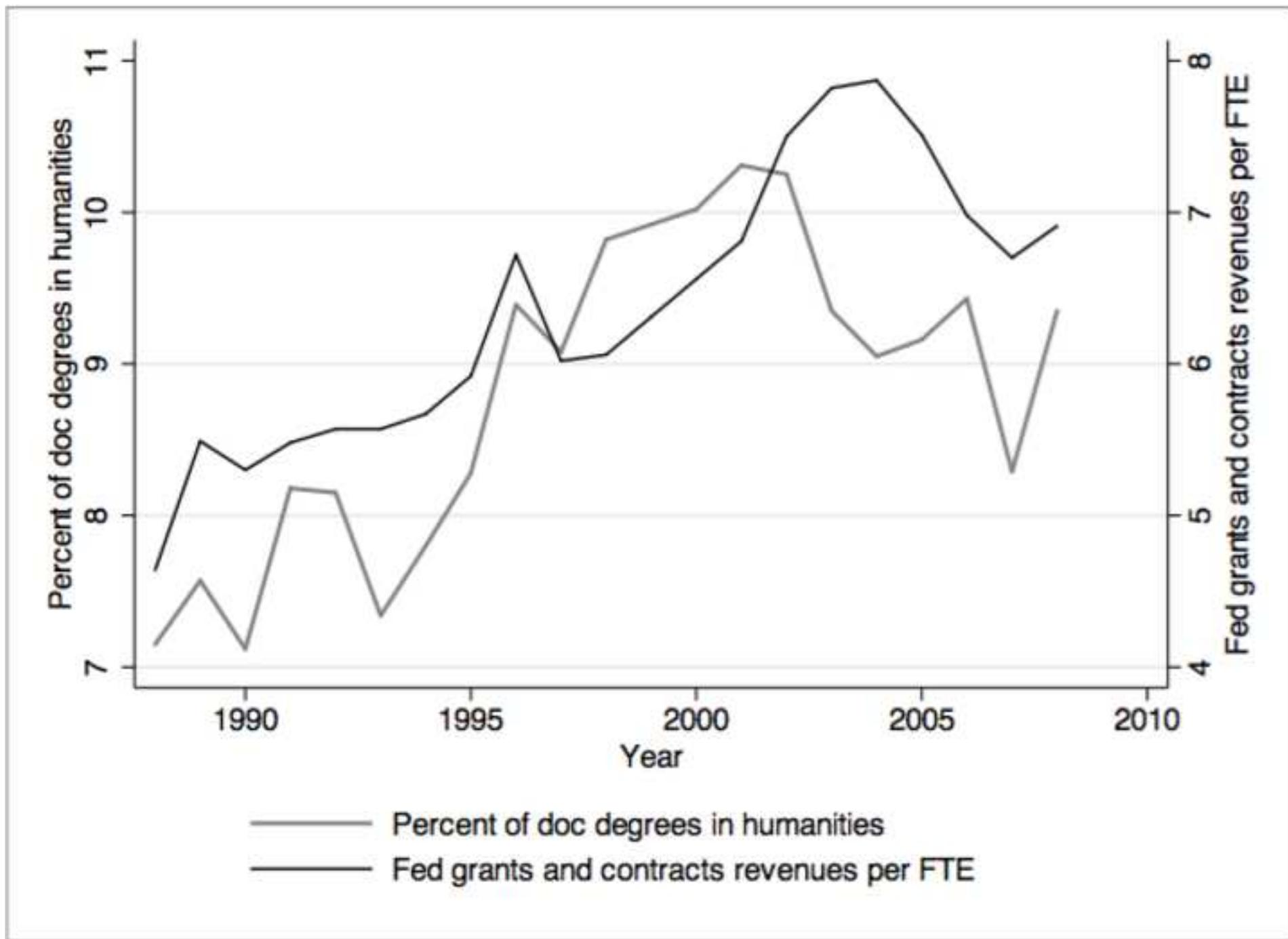Percent of doc degrees in humanities
Fed grants and contracts revenues per FTE
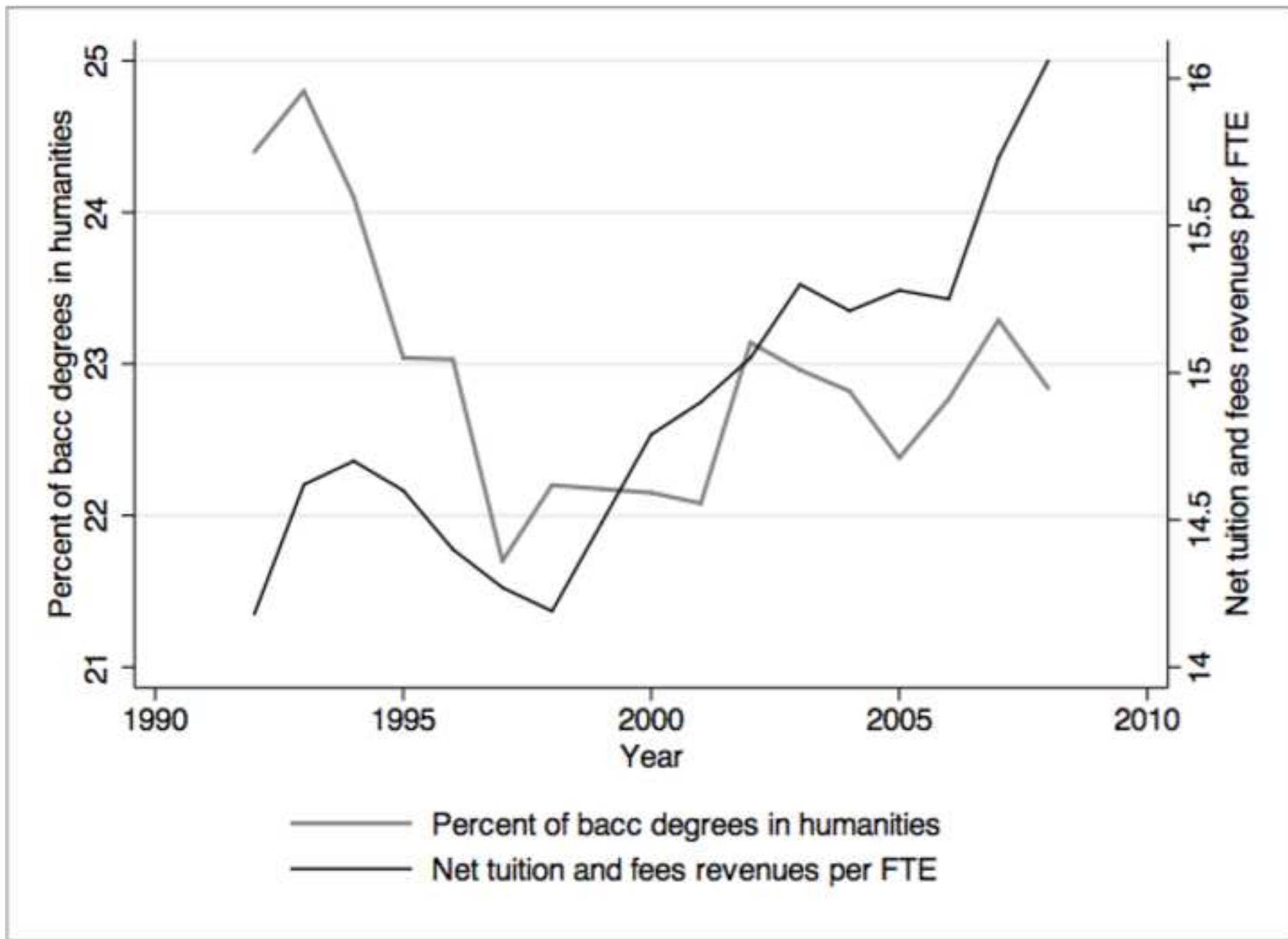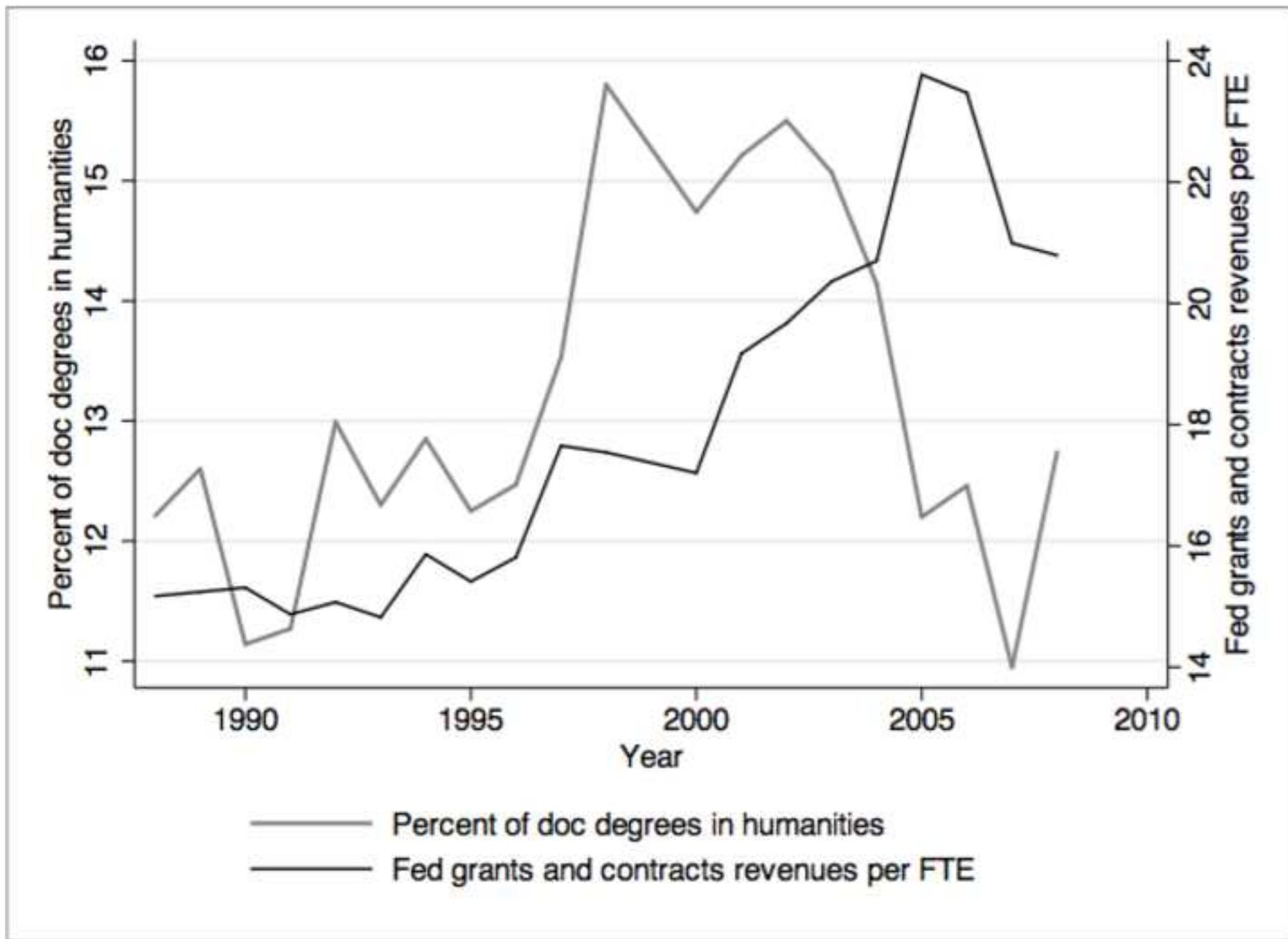
Figure

Figure

Figure 1. Percentage of baccalaureate degrees conferred in the humanities and net tuition
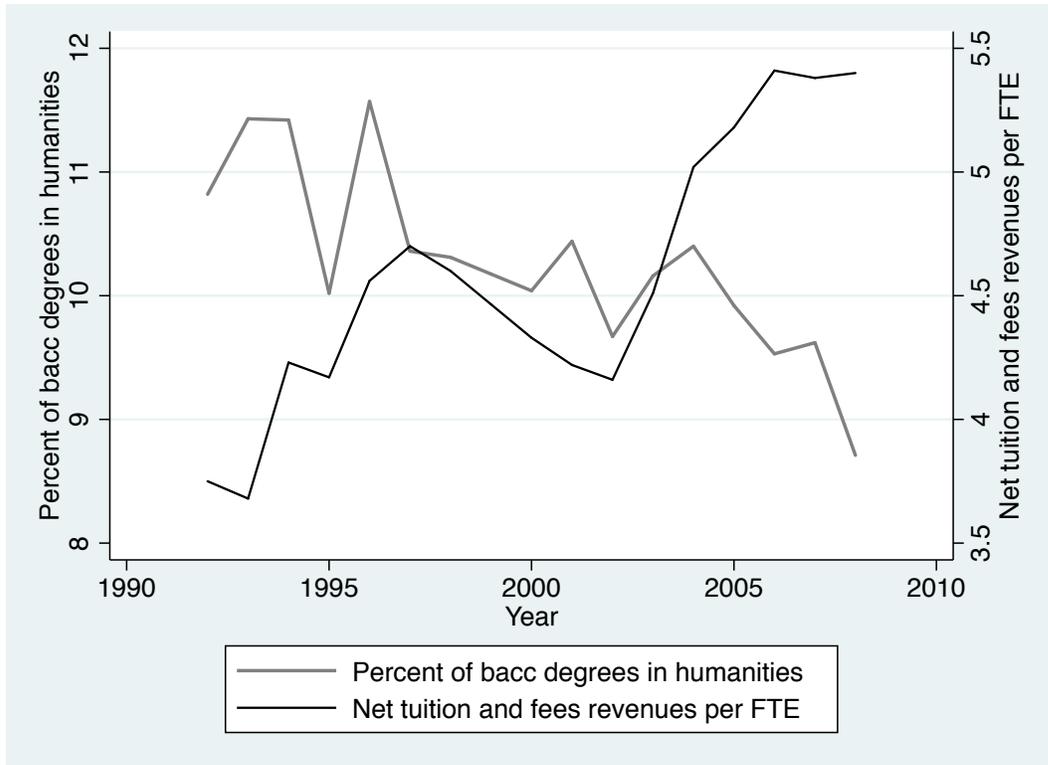
and fees revenues at public BCs, 1992-2008.

Figure 2. Percentage of baccalaureate degrees conferred in the humanities and net tuition and fees revenues at private BCs, 1992-2008.
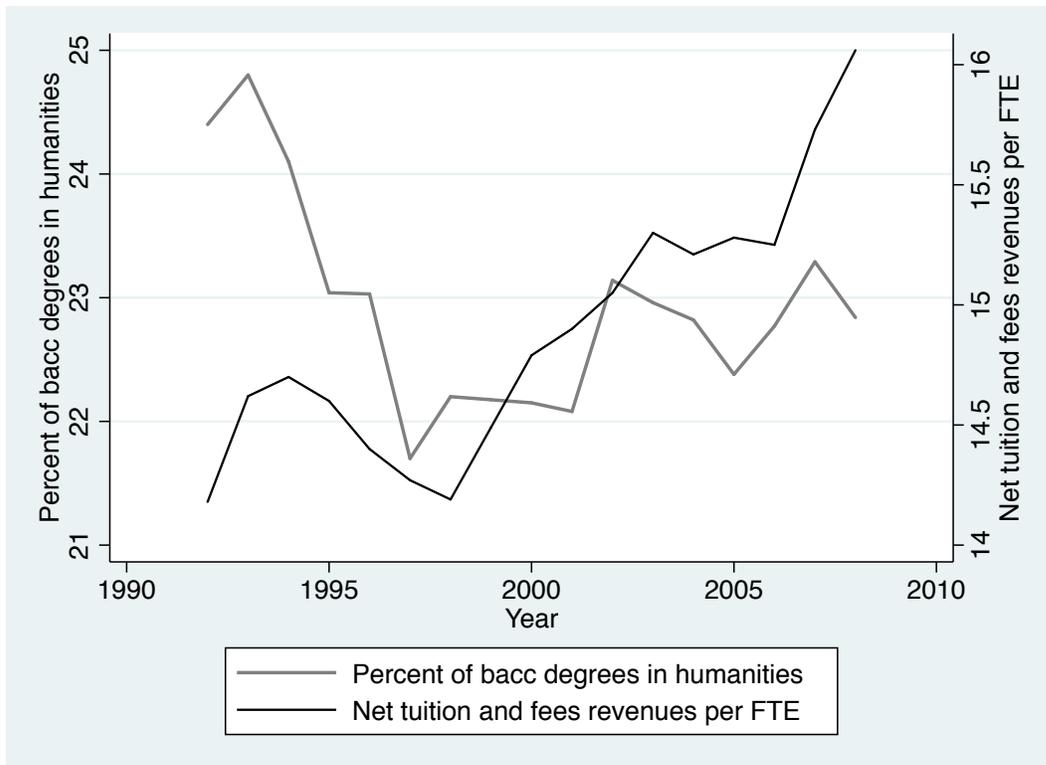
Figure 3. Predicted change over time in percentage of baccalaureate degrees conferred in

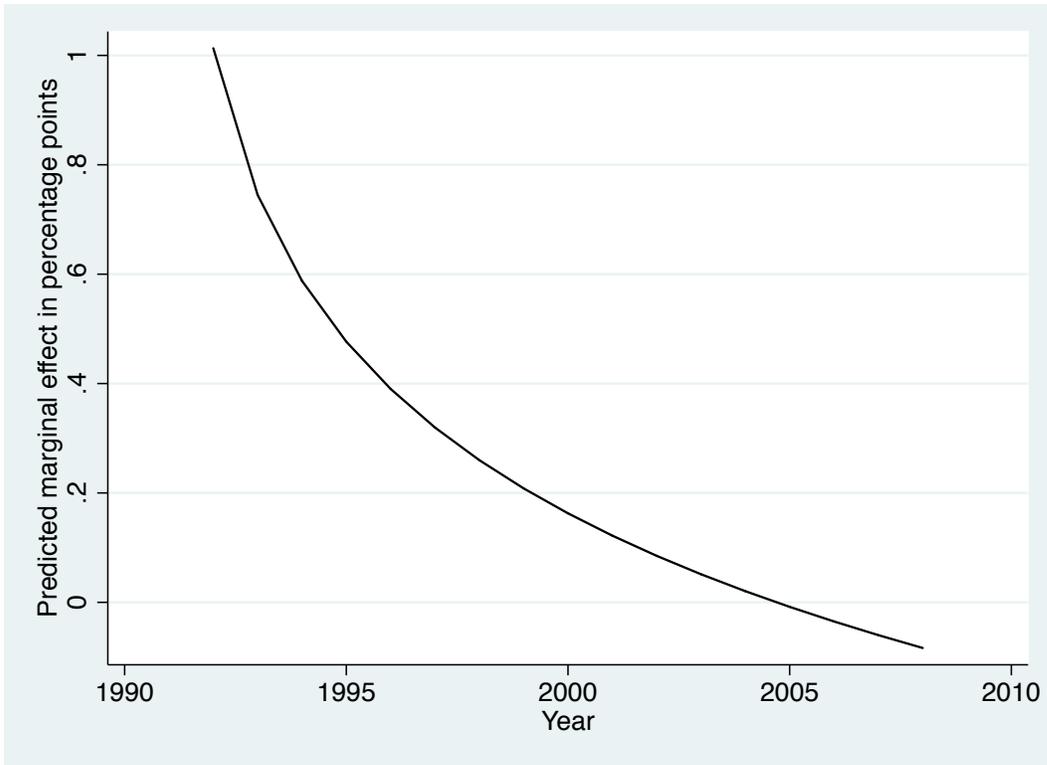the humanities at private BCs, 1992-2008.

Figure 4. Percentage of doctoral degrees conferred in the humanities and federal grants and contracts revenues at public RUs, 1988-2008.
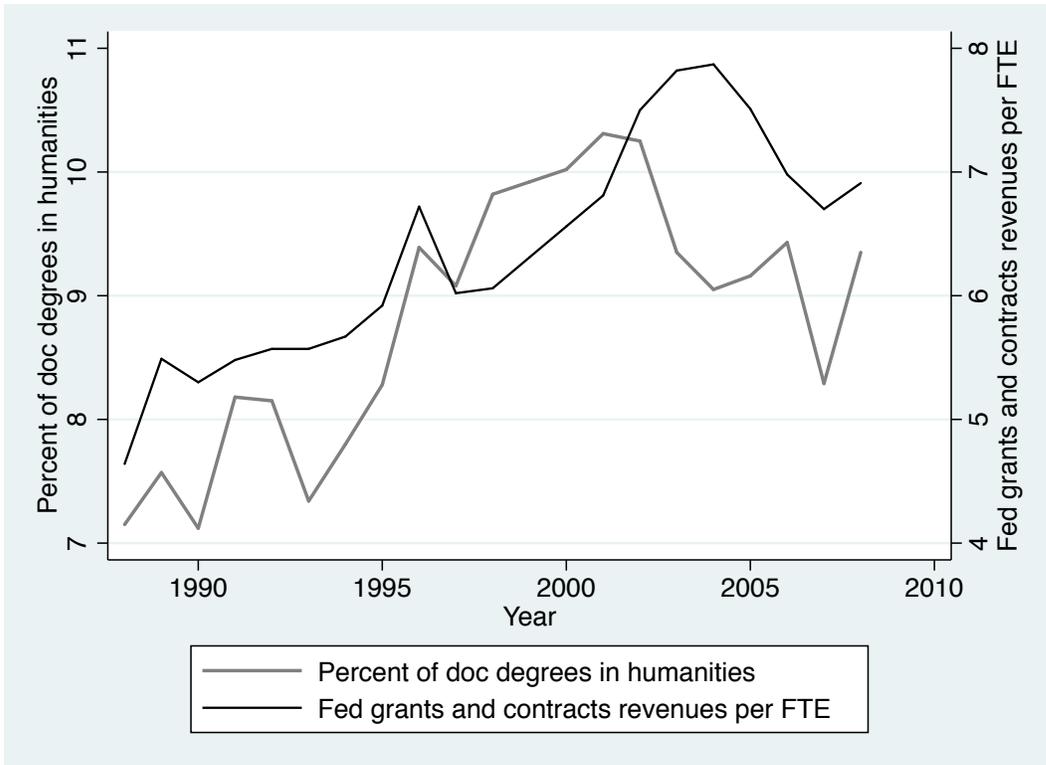
Figure 5. Percentage of doctoral degrees conferred in the humanities and federal grants and contracts revenues at private RUs, 1988-2008.